

BEST AVAILABLE COPY

Docket No. F-6485

Ser. No. 09/509,808

AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1. - 23. (Canceled)

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24. (Currently Amended) A wood component, comprising:

an article of wood having altered properties in geometrically defined near-surface areas as compared with the original state of the wood, said geometrically defined near-surface areas having properties of solidified wood melts substantially free from pyrolytic degradation products, said wood melts including cellulose, lignin and hemicellulose and having a ~~low~~ reduced degree of polymerization and increased plasticization compared with the original state of the wood, and being created by exposure of at least a portion of the article of wood to an increased temperature which raises the wood comprising said at least a portion of the article of wood above a melting point thereof, said increased temperature caused by short time high energy input into the wood component resulting from electromagnetic waves in the form of laser light having a duration of up to 50 ms.

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25. (Previously presented) A wood component according to Claim 24, wherein the geometrically defined near-surface areas include cell walls melted in one or several cutting directions so that a diffusion resistance in said geometrically defined areas to ambient media is greater relative to that of the original state of the wood independent of the cutting direction.

26. (Previously presented) A wood component according to Claim 24 or 25, wherein said geometrically defined near-surface areas are visually different from non-melted wood in the original state with respect to optical properties, absorptivity, reflectivity and diffusing power, and thereby, luster.

27. (Previously presented) A wood component according to Claim 24 or 25, wherein the geometrically defined near-surface areas have a higher hardness and abrasion resistance than non-melted wood in the original state.

28. (Previously presented) A wood component according to Claim 24 or 25, wherein a deformation behavior in the geometrically defined near-surface areas is altered compared with non-melted wood in the original state.

29. (Canceled)

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30. (Previously Presented) A wood component according to Claim 24 or 25, wherein at least one of physical and chemical properties of the geometrically defined near-surface areas is altered from the original state by substances incorporated into the solidified wood melt.

31. (Previously presented) A wood component according to Claim 30, wherein the incorporated substances are at least one of particles and pigments.

32. (Withdrawn) Method for producing a wood component of Claim 24 or 25 characterized in that a locally limited or full-area contact-free short-time high energy input into the wood component occurs by electromagnetic waves, whereby a proportion of melted volume of geometrically defined magnitude at or below the surface of the component is produced with the energy input dimensioned such that the proportion of melted volume is produced without pyrolytic degradation processes.

33. (Withdrawn) Method according to Claim 32 characterized in that electromagnetic waves in form of laser light are used.

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34. (Withdrawn) Method according to Claim 32 characterized in that the duration of the energy input is up to 50 ms.

35. (Withdrawn) Method according to Claim 32 characterized in that the energy input is carried out through electromagnetic radiation that can be controlled extremely accurately and quickly regarding the lateral extension of the range of interaction, time of interaction and intensity, having a wavelength adapted to the desired depth of the range of interaction.

36. (Withdrawn) Method according to Claim 32 characterized in that the process is carried out under inert gas.

37. (Withdrawn) Method according to Claim 32 characterized in that the process is carried out in free atmosphere, i.e. in free air, at room temperature and normal atmospheric pressure.

38. (Withdrawn) Method according to Claim 32 characterized in that extraneous substances are incorporated into the geometrically defined areas by the melting process.

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39. (Withdrawn) Method according to Claim 35 characterized in that the depth, or thickness of the range of interaction, respectively, according to the objective of the processing action is adjusted by selection of the wavelength, or range of wavelength, respectively, and the power density of the electromagnetic radiation as well as the time of interaction between the electromagnetic waves and the geometrically defined areas.

40. (Withdrawn) Method according to Claim 39 characterized in that the lateral extension of the range of interaction, the time of interaction and the intensity are realized by combination of the relative motion between the beam and the workpiece as well as by methods of dynamic beam forming and beam focusing.

41. (Withdrawn) Method according to Claim 33 characterized in that the energy input is carried out using a pulse-type laser.

42. (Withdrawn) Method to Claim 41 characterized in that the time of interaction between the laser beam and the geometrically defined areas is equivalent to the pulse length of the laser.

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43. (Withdrawn) A plurality of components of Claim 24 or 25 characterized in that said components having a melted area are joined with each other by the solidified wood melt free of pyrolytic degradation products.

44. (Withdrawn) A product characterized in that a wood-free material is joined with said component having a melted area of Claim 24 or 25, by the solidified wood melt free of pyrolytic degradation products.

45. (Withdrawn) A product according to Claim 44 characterized in that the wood-free material is at least one of transparent polymers and fibrous materials.

46. (Withdrawn) A product according to claim 20 characterized in that particles or pigments are incorporated into the solidified wood melt free of pyrolytic degradation products.